

Parker

VOLUME LXXXVI

NUMBER SIX

# THE NATIONAL GEOGRAPHIC MAGAZINE

DECEMBER, 1944

First Detailed Modern Map with English Names  
of Union of Soviet Socialist Republics

New Road to Asia

With 15 Illustrations  
26 Natural Color Photographs

OWEN LATTIMORE

Michigan Fights

With 20 Illustrations and Map

HARVEY KLEMMER

Great Lakes and Great Industries  
19 Natural Color Photographs

The Society's New Map of Soviet Russia

The Geography of the Jordan  
With 23 Illustrations and Map

NELSON GLUECK

Red Cross Girl Overseas  
With 22 Illustrations

MARGARET COTTER

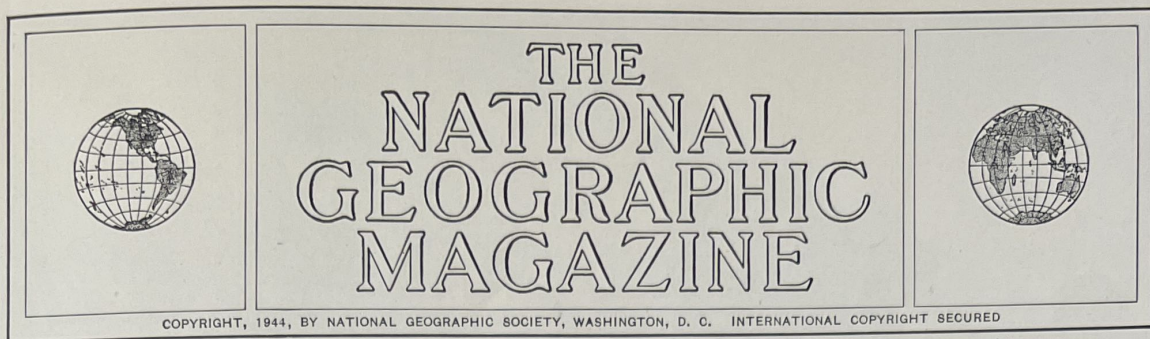
Thirty-two Pages of Illustrations in Color

PUBLISHED BY THE  
NATIONAL GEOGRAPHIC SOCIETY  
WASHINGTON, D.C.

\$4.00 A YEAR

50c THE COPY





## New Road to Asia

BY OWEN LATTIMORE

*With Illustrations from Photographs by the Author*

OUT of this war has grown a new road to Asia—a sky road which will give to Americans who travel after the war a new approach to Asia and a new picture of what Asia is like.

This new road is the Alaska-Siberia route. Its bases and the necessary knowledge of weather and experience with flying conditions have been developed with unprecedented speed by the need for a fast, safe route over which planes could be ferried from American factories to Soviet fighting fronts.

As a result of these developments Alaska has moved up to a new position and a new importance in the American scheme of things. Alaskan flying fields for land-based aircraft will very likely challenge in importance the romantic Treasure Island Clipper base at San Francisco's Golden Gate.\*

The rivalry will not be one of parallel competing routes, but of altogether different approaches to the far mainland of Asia, each with its own advantages for American enterprise and America's now vast and diversified resources in planes, flying personnel, and flying know-how.

### "North for Safety"

The first principle of the Alaska-Siberia route is north for safety. The Aleutian Island steppingstones to Asia look more attractive on the map than they do to the pilots and navigators on whom has fallen the grim responsibility of combat flying in Aleutian fog and rain.† They know that the Aleutians lie in one of the most treacherous temperature belts in the world, where the air is full of moisture suspended at a temperature just cool

enough so that the rush of a plane's wings will make it condense as ice.

Farther to the north it is cold enough so that on more days in the year the moisture in the air condenses and falls, leaving a safe path for aircraft. Therefore, the new route will avoid islands and head straight from Alaska to Seimchan or Yakutsk on the mainland of Asia.

Yakutsk, occupying in the Soviet Subarctic much the same relative position that Fairbanks occupies in Alaska, is the vantage point from which to look at the mainland air approach to Asia.

From Fairbanks the main flight lanes lead not to our Pacific coast, but straight to the heart of North America, east of the Canadian Rockies, across the Peace River country and the wheatlands of Alberta and Saskatchewan, and down to such points as Minneapolis, Omaha, and Chicago.

From Yakutsk the flight lanes also run "downhill"—across Outer Mongolia to the heart of China; through Soviet Central Asia and thence either to Calcutta on the eastern side of India or Bombay on the western side,

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Strategic Alaska Looks Ahead," by Ernest H. Gruening, September, 1942; "Our Air Frontier in Alaska," by Maj. Gen. H. H. Arnold, October, 1940; "First Alaskan Air Expedition," by Capt. St. Clair Streett, May, 1922; "Today on the Yukon Trail of 1898," by Amos Burg, July, 1930.

† See Map Supplement, "Union of Soviet Socialist Republics," with this issue of the NATIONAL GEOGRAPHIC MAGAZINE. Also: "Navy Artist Paints the Aleutians," by Lt. William F. Draper, August, 1943; "Bizarre Battleground—the Lonely Aleutians," by Lonnelle Davison, September, 1942; and "Riddle of the Aleutians," by Isobel Wylie Hutchison, December, 1942.





### A Sluice-built Mountain Is a Gravel Monument to the Far North's Husky Placer Miners

They have to be strong to withstand winter's rigors. For water to wash pay dirt, they must await spring's thaw. These men had volunteered for war, only to be ordered to stay at work because of Russia's need for gold. They eagerly greeted the American visitors as allies (page 657).

and farther west to Iran, Turkey, and even Cairo.

Since the northern route to Asia crosses less water and more land, travelers of the future, buying their tickets in New York, may well argue the merits of flying to Moscow via Europe or via Asia.

### Nearest Siberia Is Least Known

For a quarter of a century the Soviet Union has been little enough known to the average American. Paradoxically, it is the Soviet territory nearest to us which is the least known of all. The Soviet Arctic, northeast Siberia, and what Russians call "the Far East"—the Amur territory and the coastal strip leading to Vladivostok—are less well known to us today than they were seventy years ago.

The harbors of Kamchatka and the Sea of Okhotsk were once familiar to American whalers and sealers. The Western Union, in the vigor of its youth, tried to beat the laying of the Atlantic cable by pioneering a Russo-American telegraph line across Bering Strait and through Siberia to Europe.

This romantic and now-forgotten story is typical of American pioneering; it failed, but out of the failure grew the first telegraph line

connecting our Northwest with California and hence with the East. A by-product of that enterprise was one of the classics of American travel, *Tent Life in Siberia*, by George Kennan, who took part in the search for a Russo-American telegraph route.\*

Today that route is opening up again to Americans—by air. A few months ago I was lucky enough to fly down the band of Soviet Asiatic territory from Bering Strait all the way to Tashkent, as a member of the party which accompanied Vice President Wallace on his mission to Chungking.

The journey was precedent-breaking and precedent-making in many ways. Never before had an American of such high rank visited Soviet territory. The journey followed a route destined to be a focus of interest to us after the war, when the new structure of Asia, whatever it may be, settles into place.

The story properly begins with the crew, as outstanding representatives of America's young flying generation. All but two of them had been in the crew which flew the late Wendell Willkie around the world; several had

\* See "Island in the Sea of History: The Highlands of Daghestan," by George Kennan, NATIONAL GEOGRAPHIC MAGAZINE, October, 1913.





### Nazi Armor, Moved 4,000 Miles from the Front to Komsomolsk, Awaits the Furnace

German invasion cut down shipments of iron to the "City of Youth"; so broken armament from the battle lines was made into plates for use in Far East shipyards (page 648).

accompanied Secretary of State Hull to Moscow in 1943; and as a group they had piled up a staggering total of flying hours and flying miles all over the world during the war. They were fine representatives of the Air Transport Command, which has built up such amazing air communications during the war.\*

### Science in Siberia

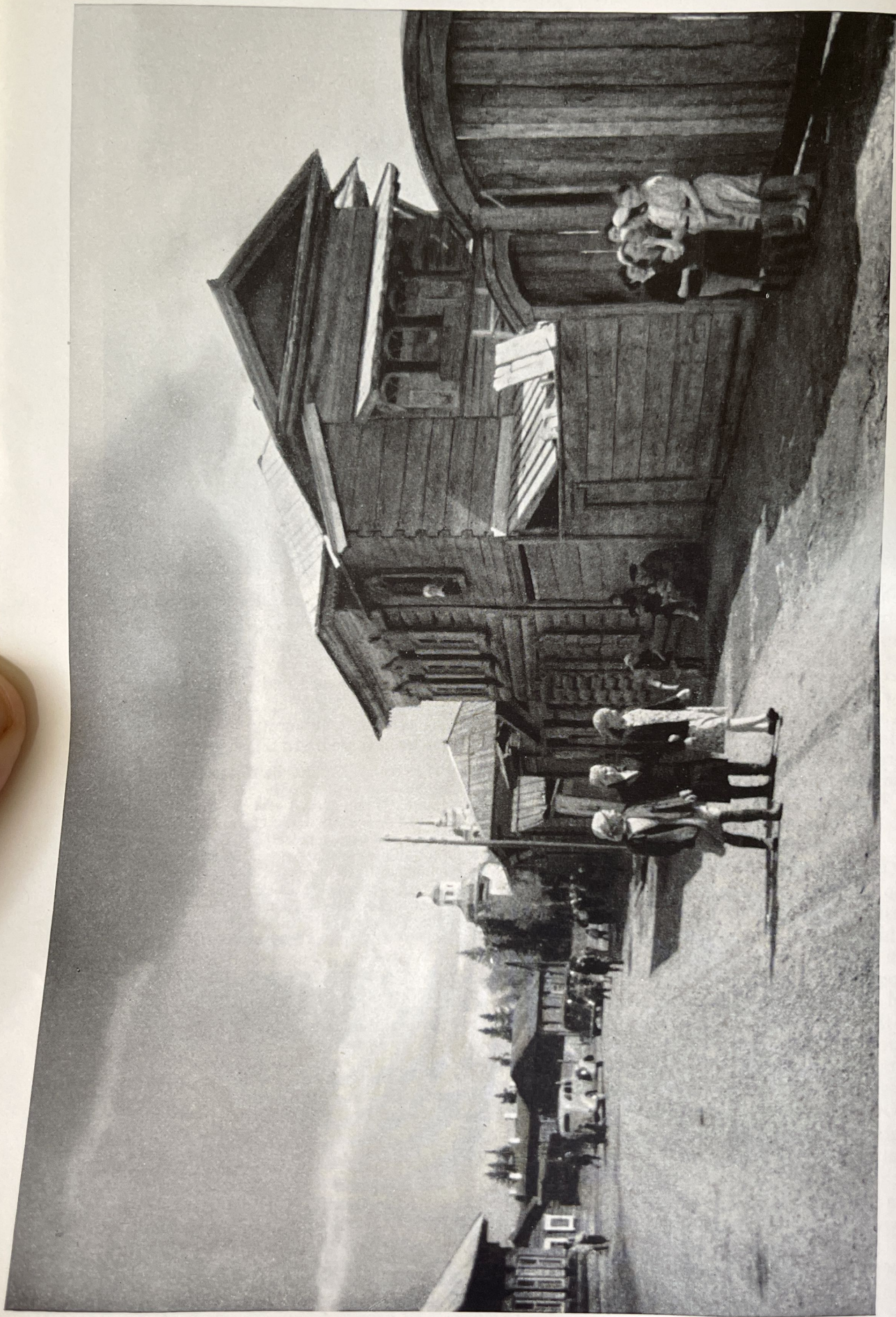
Of the civilian personnel, John N. Hazard, who did the most important interpreting in Russian, was especially well equipped because of his experience in the Soviet Lend-Lease section of the Foreign Economic Administration. I represented the Office of War Information and did the interpreting in Mongol and part of the interpreting in Chinese. John Carter Vincent, Chief of the Division of Chinese Affairs of the Department of State, was the Vice President's political and diplomatic aide.

Over and above his political rank as the representative of the President, the Vice President had several unusual qualifications for such a journey. He has studied Russian and was able to read his public speeches in Russian. Above all, he is a scientist of world rank. We soon found how important this was. In Siberia the scientific tradition and the pioneer tradition are closely intertwined.

We think of science and culture as amenities of life which catch up rather slowly with a young pioneer community after the wilderness has been tamed. In Siberia it is different.

\* Sgt. Roderick W. Robitaille, of Maine, is of French-Canadian descent. He has flown the China-Burma-India Hump and all over the world. Technical Sgt. Richard J. Barrett, radio operator, a quiet genius at his work, had accompanied Colonel Kight, our pilot, on almost all his major missions. Technical Sgt. Victor P. Minkoff, assistant engineer, was born in Philadelphia. The Russian which he learned in childhood from his parents made him a valuable interpreter between our flying personnel and the Soviet personnel. Master Sgt. James M. Cooper, chief engineer, born in Scotland, has probably the world's most startling combination of American wisecracks with Scottish accent, and of American know-how with the Scottish genius for making machinery work. Capt. Kenneth Knowles, as observer and military secretary, was a personal aide to the Vice President. Capt. John C. Wagner is a navigator of such uncanny skill that he is a legend even in the Air Transport Command. See "American Wings Soar Around the World," by Donald H. Agnew and William A. Kinney, NATIONAL GEOGRAPHIC MAGAZINE, July, 1943. Lt. William G. Golkowske, co-pilot, showed his quality when he stuck it out in the cockpit on the most trying flight of the journey, at the highest altitude and under severe weather and icing conditions, before collapsing with scarlet fever. Col. Richard T. Kight, pilot, and in command of the whole flight, had flown Mr. Willkie and after that had put in a grueling spell over the China-Burma-India Hump. He knows the Alaska-Siberia route and is a first-class diplomat in uniform (Plate I).

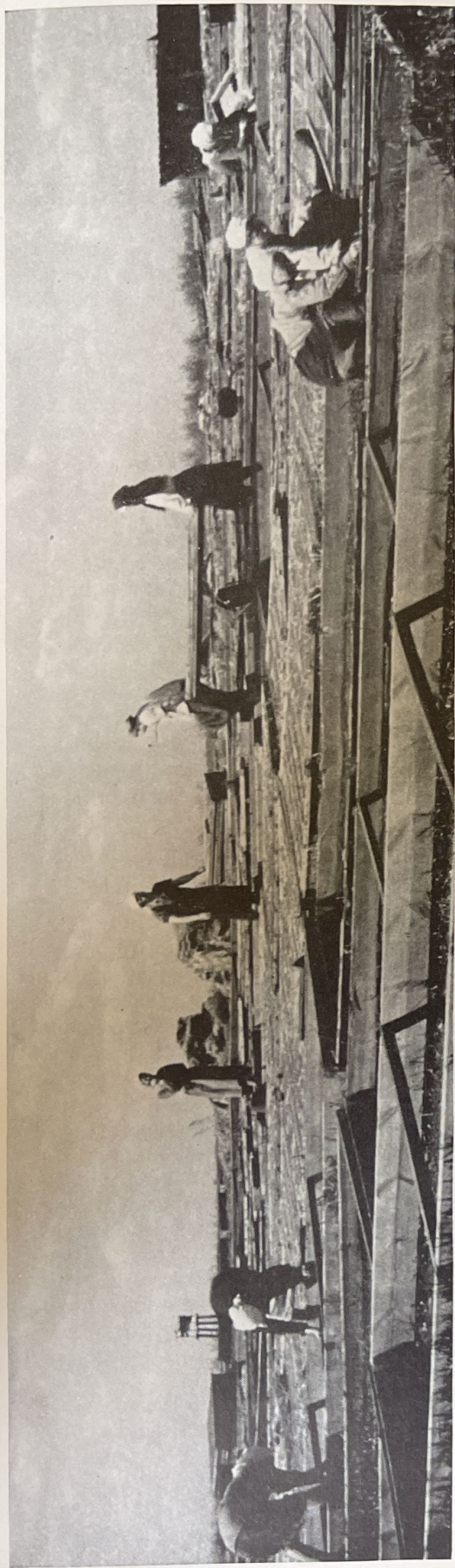




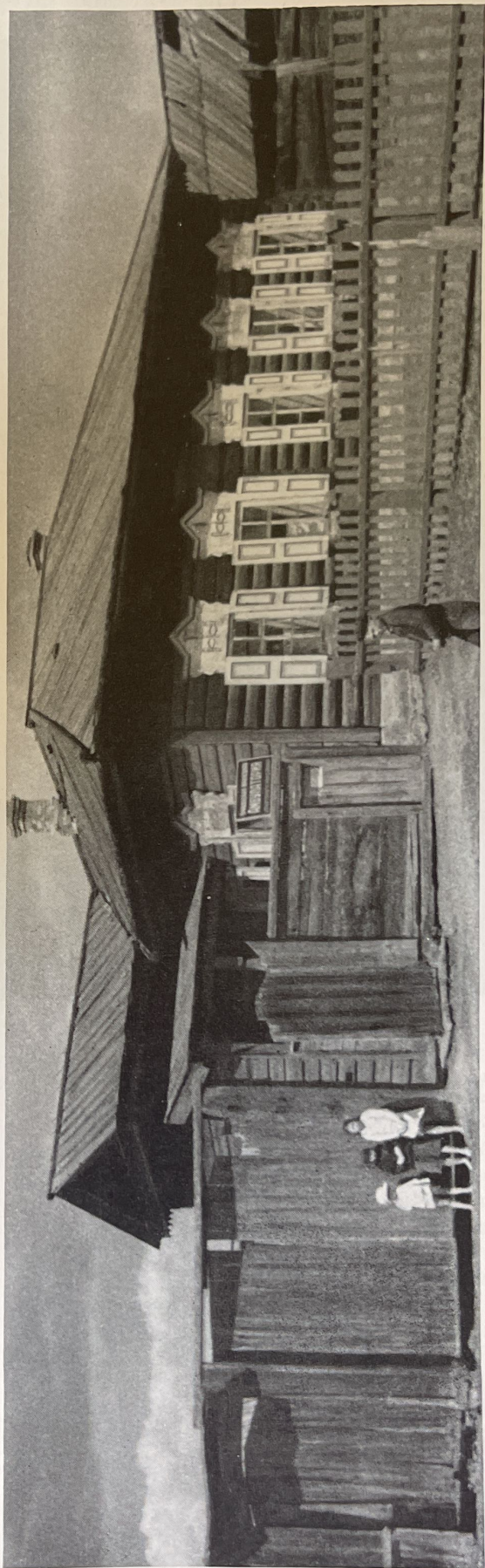
Red Dawn's Girls Are Talking about the Americans' Automobile Parade down Main Street

Theirs is an old-style village reorganized as a collective farm. Twenty-five years have made little visible change. A church in the distance is a link to the past. Though half its adult population has gone into the army or war industry, production has been maintained. Red Dawn operates 20,000 acres near Irkutsk.





So That Sheltered Young Plants May Get Direct Sunlight, a Cold Frame's Glass Windows Are Removed on a Warm Spring Day  
Thus a state farm near Irkutsk forces melons, cucumbers, and tomatoes to grow in a latitude corresponding to that of lower Labrador.



Red Dawn's First-aid Station Goes Unpainted Except for White Blinds, the Height of Fashion in Siberia  
School children have come from a playground enclosed by the picket fence. A girl poses comfortably on one leg.





### Wall Cartoons Jest at "Strategic" Retreats

Says this poster at Seimchan: "Hitlerites are reducing their lines to the point where the shortest front will be along the River Spree, on which Berlin stands." Berlin burns in the background.

Political oppression under the Tsars was so harsh that the mildest liberals were often sent into distant exile. For this reason university professors, doctors, and scientists and intellectuals of all kinds were among the earliest exile pioneers of Siberia.\*

As one result, there is a larger, earlier, and more scientific literature about the peoples of Siberia when the Russians first came in contact with them than there is about the Indians of North America in the early days of colonial contact.

The scientific tradition continues, with the difference that the scientist no longer works as a lonely exile but with the organized support of the Government. There has probably never been a more orderly phase of pioneering

than the opening up of Russia's Far North under the Soviet.

While ships and planes work along the Arctic coast, explorers cross back and forth between the rivers flowing to the Arctic. They are not content with mapping and prospecting the surface. From the air we could see that prospecting shafts had been sunk at intervals in long lines across the country.

In the Soviet Far North work of many kinds is integrated in a complicated pattern. Education is brought to primitive tribes, offering a ladder by which they can climb up into the modern world; Chukchi and Koryaks can become scientifically trained meteorologists at weather stations.

### Pigs Bred Near the Arctic Circle

Nor are only the most valuable resources exploited, such as gold and furs; the over-all vision is one of communities which are well rounded and self-supporting.

We had our first evidence of this when we made an intermediate landing at Velkal, an Asiatic Eskimo village on Kresta Bay (Zaliv Kresta), near Bering Strait. Here we found pigs being successfully bred not far below the Arctic Circle. They were Yorkshire White and were crossed with Ukrainian and Siberian strains to make them hardier, but the climate was so severe that they had to spend most of their lives indoors in immaculately clean piggeries.

In this inaccessible part of northern Siberia food must either be produced or brought in by plane or ship, and freight space is valuable. So the pig, the chicken, and the cow are being

\* See "With an Exile in Arctic Siberia," by Vladimir M. Zenzinov, NATIONAL GEOGRAPHIC MAGAZINE, December, 1924.



taught to pioneer; new strains of wheat and rye are being developed which ripen in the short northern summer; cucumbers and tomatoes are started under glass and then transplanted into the open.

Sometimes bees can be kept in the greenhouses to pollinate the plants; at other times the pollination has to be done by hand.

Even apples are grown where no one would think it possible. This is done by training the branches of the young trees out along the ground in the same way that we espalier a fruit tree against a sunny wall.

When the branches are spread out close to the ground, they can be covered with fir boughs and earth during the winter to protect them from frost. This creates another problem: the covered trees are bleached, and the bark easily scorches under the sun the next summer. To protect them against sunburn, they have to be white-washed.

Native experience is also turned to good account. Yakutsk is the capital of the Yakut nation, a people whose language is a branch of the Turkish family of languages. At some time in the remote past, their ancestors migrated from much farther south, probably from the region around Lake Baikal (Ozero Baikal).

Moving slowly to the north, they managed to bring their cattle with them. In summer the people lived in tents or tepees, like the steppe nomads, but in winter the cows could be kept alive only if they were under shelter.

The Yakuts therefore built log cow barns. These were oblong, to make it easier to feed the cattle and clean out the barns. Since the cattle would have suffered from hoof rot if they had been allowed to stand in mud through the long winter, the barns even had wooden floors.



**Treasured Silk Brocades Are 15 to 20 Years Old**

Buryat-Mongol women wear the traditional costume, an import unobtainable now because of war. China's dragons show the origin of the fabric.

Then, to look after the cattle more easily, the Yakut family made a one-room dwelling for itself at one end of the barn.

This room, though square, was arranged in the same pattern as the original round tent. In the center was the fireplace. At the left, as you came in the door, was the place for men and weapons. At the right were the places for women, children, and household gear.

#### **Fire Warms Cows; Cows Warm People**

Since no one had a wooden floor in a tent, no one thought of providing this room at the end of the cow barn with a wooden floor, with the result that the cows were in this respect better off than the people.

So that the cows might get the warmth of the fire, and the people the warmth of the



cows, there was only a half partition between the barn and the family room. Such close company resulted in a high rate of tuberculosis. Under the Soviet regime, therefore, the Yakuts have had to be persuaded of the benefits of living apart from the cows.

Nevertheless, it was the Yakuts who brought cows to the north and proved that they could be kept alive there. In fact until recently, with planned and general scientific development of technique under Soviet rule, the Yakut way of life had a higher survival value than that of the Russians.

The poorer Russian colonists would settle among the Yakuts and learn to live as they lived; their children would grow up speaking Yakut, and in a generation or two they would all be Yakuts.

At present it is chiefly the Yakuts who are learning from the Russians; but Yakut pride in Yakut nationality and tradition continues and is officially encouraged. As among all other "national minorities," as the Russians call them, a large measure of self-government prevails. The Yakut language is the official language, and newspapers and books are printed in Yakut as well as in Russian. Russian is taught only as a "foreign" language in Yakut primary schools and high schools, much as we teach French. To go on to a university, however, it is essential to have a good knowledge of Russian. This results in a selective process.

The Yakut people, as a people, remain Yakut; but the ablest and best educated among them use Russian as a language. This is not only a link between them and the Russians, but between them and the active leaders of the other national minorities whose native language is not Russian.

On the other hand, Russians who live in a Yakut community are not forced to educate their children as Yakuts. They may organize their own Russian schools; but in these schools the teaching of Yakut, as a second language, is compulsory. In other words, in the land of the Yakuts it is the Yakut language that counts; in the Soviet nation, it is the Russian language that counts.

### A Brisk "City of Youth"

Industry can also be right up in the forefront of pioneering. Perhaps the most striking example is at Komsomolsk, "City of Youth," on the Amur River.

It was only in 1932 that the first detachment of 4,000 members of the Young Communist League arrived to break ground in the virgin wilderness for a settlement. Today it is a city of some 100,000, and it is still rare to see

anyone who looks over 40 years of age. As the people came when they were young and married young, the city swarms with children.

Although founded in the wilderness, Komsomolsk was designed from the beginning to be an industrial city. Today it manufactures planes and refines oil; but shipbuilding is the major activity.

Komsomolsk lies far enough downstream from the Japanese-held frontier of Manchuria,\* and far enough upstream from the mouth of the Amur, with dense virgin forest all around it, to be very nearly impregnable. Yet the stream is wide and deep enough for the launching of ocean-going ships. The largest we saw was an 8,000-ton vessel.

Although this was a journey which was full of unexpected things, it was here that we ran into one of the most spectacular. Komsomolsk, as an industrial center, was planned as the concentration point of a number of raw materials drawn from the whole region.

Because of the German invasion, however, iron could not be mined and transported to Komsomolsk as fast as originally planned. The shortage at the shipyards was dramatically met by using German tanks and self-propelled guns.

These were brought east along the Trans-Siberian Railroad by trains returning from western Russia, where they had carried munitions and supplies. Then they were shipped down the Amur to Komsomolsk, to be rolled and stamped into ship plates (page 643).

There were thousands of them—mountain ranges of them. Komsomolsk is a place to think about when you read in the Soviet communiqués about the destruction of German armor.

### The Problem of Frozen Subsoil

Practically everywhere north of the Trans-Siberian Railroad the Russians are grappling with a problem which is also known in Alaska and northern Canada—the problem of the permanently frozen subsoil. The Russians call it *vechnaya merzlota*. They consider it so serious that they have a National Institute of the Merzlota, with branches in a number of places.

The problem itself is simple. In parts of northern Siberia which were not covered by an icecap in the last ice age, but were exposed to the cold of that time, the soil is permanently

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Japan Faces Russia in Manchuria," by Willard Price, November, 1942; "Byroads and Backwoods of Manchuria," by Owen Lattimore, January, 1932; "Here in Manchuria," by Lilian Grosvenor Coville, February, 1933; and "Manchuria, Promised Land of Asia," by Frederick Simpich, October, 1929.



## Sunny Siberia



### Polar Bear on a C-54 Transport Is the Trademark of an Unborn Airline

Col. Richard T. Kight, who flew the author to Siberia, peers from the cockpit. A Soviet flyer designed the insignia as a pledge that after the war the two airmen would organize an Alaska-Siberia "Polar Bear" airline.



© National Geographic Society

Kodachromes by Owen Lattimore

### Siberia's Hosts to Visiting Americans Were a Diplomat and Air Force General

Dimitri Chuvakhin, head of the American section, Soviet Foreign Office, poses with General Semeonov, chief of the Alaska-Siberia air ferry. Since June, 1942, thousands of Lend-Lease planes have flown across Bering Sea.





© National Geographic Society

Kodachrome by Owen Lattimore

### In Shushenskoe, Where Exiled Lenin Lived in a Log Cabin, Villagers Await the Passing of an American Mission

A graveled, graded street is a reminder that Siberia once knew only mud. A well sweep projects above a high board fence enclosing a yard. Before many years growing shade trees will break the monotony. These women may be descendants of exiles, religious dissenters, or migrating serfs—three classes that populated the old Siberia.





© National Geographic Society

### In June the Wilderness Blazes with Wild Flowers

Thaw having unlocked the earth, the hot brief summer brings asters, hollyhocks, violets, forget-me-nots, pinks, pond lilies, roses, and rosemaries. Even the alpine edelweiss is known to forest clearings.



Kodachromes by Owen Lattimore

### Here a River Boat Stopped in Admiration of the Blossoms

On a Yenisei bank, stewardesses display the harvest. Even the botanizing former Secretary of Agriculture, Henry A. Wallace, could not name all plants he saw here. Part of Siberia's huge timber reserve stands in the distance.





**A Dozen Bright Young Reasons Why Komsomolsk Is Called the "City of Youth"**

Few in this town, founded a decade ago in the wilderness, appear older than 40. With their play supervisor, these children of working parents meet Capt. Kenneth Knowles, ATC liaison officer.



© National Geographic Society

Kodachromes by Owen Lattimore

**A Dominoes Game Kills Time on the Deck of the Steamer *Joseph Stalin***

John Carter Vincent (bow tie) of our State Department watches. Two men on the left are Russian photographers covering the Americans' tour. Their uniformed companion is a Soviet official.



## Sunny Siberia



### Colonel Kight and Mr. Vincent Meet Three Ranchers on a Buryat-Mongol Collective

At least two have been decorated for service on the food front. They wear European headgear with their prewar tribal costumes. Their growing sons dress Russian-style, as trade goods no longer arrive from China (Plate XV).

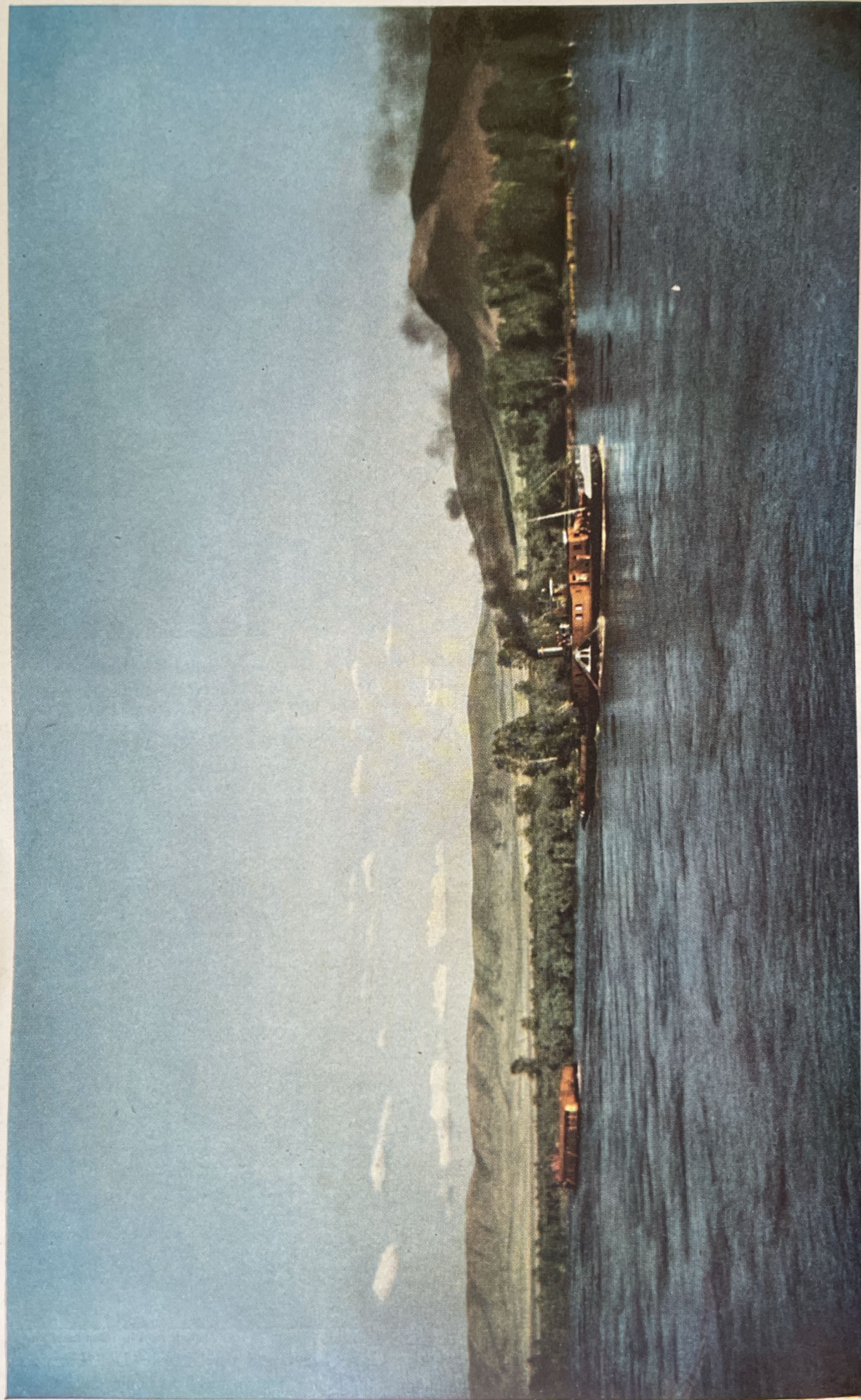


© National Geographic Society

Kodachromes by Owen Lattimore

**Windows' Red Geraniums and Lace Curtains Show the Care Lavished on Simple Log Homes**  
During icy winters the flowers are cherished as signs of life. Except for blinds, which may be swung and bolted, this is not unlike a pioneer American cabin.





© National Geographic Society

Kodachrome by Owen Lattimore

### Shearing the Swift Yenisei, a Side-wheeler Puffs a Streamer of Wood Smoke as It Tows a Barge Upstream

For many of the Yenisei's 2,900 miles, no sign of life is visible. Like Canada's Mackenzie River, it flows into the Arctic, and so its usefulness is limited. In winter the frozen stream serves as a sled track, but at its mouth 50-foot ice hills grind thunderously. In summer its warm current softens the ice pack and assists Arctic Ocean navigation. Soviet icebreakers opened the Northeast Passage in the 1930's. Now ocean-going steamers push down the Yenisei to Igarka, a lusty lumber port.





© National Geographic Society

### A Kazakh Girl Clings to Age-old Styles

She wears the traditional costume of a maiden. Her fur cap is topped with eagle feathers.



Kodachromes by Owen Lattimore

### Her Sovietized Cousin Prefers Modern Dress

Graduate of a veterinary school, she has been decorated for "labor and glory" in preventing cattle plague.





© National Geographic Society

Kodachrome by Owen Lattimore

**Childhood and Picket Fence in Mid-Siberia Stir Memories of Rustic America**

Mr. Lattimore found Siberian youngsters smiling, polite, and not at all shy of strangers or their cameras.



frozen to a vast depth. During the short summer, with its long sunlight hours, the surface thaws. Below the surface, however, the soil remains frozen. Since this condition largely prevents drainage, the whole surface tends to become waterlogged.

Naturally, it is difficult to put up a large modern building on such ground; but the Russians are proud that they have now almost solved this problem.

At Magadan, on the Sea of Okhotsk, we stayed in a seven-story apartment building which was one of the first large buildings put up on a foundation of permanent frost. This was done by excavating down below the level of the summer thaw. A layer of insulation was then spread to prevent the interior warmth of the building from affecting the permanently frozen ground, and the building was constructed on top of the insulation.

The completed building settled very little and has remained steady.

Magadan is also part of the domain of a remarkable concern, the Dalstroï (Far Northern Construction Company), which can be roughly compared to a combination Hudson's Bay Company and TVA. It constructs and operates ports, roads, and railroads, and operates gold mines and municipalities, including, at Magadan, a first-class orchestra and a good light-opera company.

At the time we were there, Magadan was also host to a fine ballet group from Poltava, in the Ukraine. As one American remarked, high-grade entertainment just naturally seems to go with gold, and so does high-powered executive ability.

Mr. Nikishov, the head of Dalstroï, had just been decorated with the Order of Hero of the Soviet Union for his extraordinary achievements. Both he and his wife have a trained and sensitive interest in art and music and also a deep sense of civic responsibility.

### Greenhouse Vitamins for Miners

We visited gold mines operated by Dalstroï in the valley of the Kolyma River, where rich placer workings are strung out for miles (page 642). It was interesting to find, instead of the sin, gin, and brawling of an old-time gold rush, extensive greenhouses growing tomatoes, cucumbers, and even melons, to make sure that the hardy miners got enough vitamins!

At the port of Magadan we saw an American-built Soviet icebreaker, and the wharves were stacked high with American Lend-Lease equipment.\* Here and everywhere else we found the Russians very appreciative of Lend-Lease. American machinery and machine tools in factories were clearly identifiable, and

the workers liked them. "As good as American" is the standard at which Russian industry aims.

In the factories also we found among the numerous war slogans, posters, and cartoons, many which cordially named the United States and Great Britain as allies. Within twenty-four hours of the landings in Normandy, factories were carrying banners and long scrolls announcing the Second Front.

### Welcome Warm and Sincere

There was no doubt about the warmth of Russian feeling for Americans. As we walked through a factory, we would frequently be followed by a ripple of applause. Sometimes the workers would bend even more intently over their machines; in other factories, men and women, section by section, would stand back from their work and cheer, or shout out slogans and greetings.

In Tashkent, one of the largest cities we visited, I went into a store with Colonel Kight. He was easily recognized as an American by his uniform, and his tall Texan figure and boyish smile made him a good mark for hero worship. By the time we came out of the shop, crowds jammed the traffic on one of the main streets of the city.

The throng broke into applause and made a lane for him as he walked to the car, and a boy who looked about fourteen called out, in careful English which he had evidently been practicing, "Long live America!"

In Tashkent, also, at one of the public parks, we noticed a girl picking flowers near the gate. She seemed to pay no attention to us, but when we came out she pushed her way through the crowd up to our car and handed an armful of flowers through the window, saying in Russian, "We do not have much in time of war, but we wish to give these to our American allies."

Peaceful though Siberia is, and far from the war, "in time of war" is the refrain that runs through everyone's life. Because of the war, about 50 percent of the work on farms is done by women, and 30 percent of the work in factories, including heavy work.

Wounded men were everywhere, on the streets and in the public parks. This was partly because Siberia, though much more thinly populated than European Russia, has sent of its best to the front, where the tough "Sibiryaki" have made a grim record in the relief of Moscow, the turning of the tide at Stalingrad, and many another battle. Partly it is because the Red Army distributes its

\* See "Lend-Lease Is a Two-way Benefit," by Francis Flood, NATIONAL GEOGRAPHIC MAGAZINE, June 1943.





### Pride of a Kazakh Rider Is His Fox-fur Cap

The design shows his robe was made in Central Asia. He is accustomed to both silk and cotton. His pony is a descendant of wiry mounts that bore Genghis Khan's conquering archers across icy mountain passes. Archery lingers on the steppes only as a sport, but Kazakhs have several divisions of modern cavalry at the front.

wounded widely to quiet places where they can get rest and sun and ample food (page 661).

Our American officers and men got on beautifully with the Red Army men. At one large hospital which we visited, some of our men took a quick look, then went back to the plane and returned loaded with cartons of cigarettes and settled down for a get-together.

### Russians Are Able Flyers

Our men found the Russians impressive also as flyers. The colonel commanding a plane which the Russians had assigned to accompany us had made more than a hundred landings behind the German lines, in guerrilla territory, carrying supplies.

Colonel I. P. Mazuruk, also assigned to us, is a legendary figure, romantic, daring, good-looking, and full of fun. He "cracks wise," just like an American. Once, looking over the number of diplomats present, he said, "If we take them all aboard the plane, it'll fly zigzag."

Colonel Mazuruk—now a general—is a Hero of the Soviet Union. He deserves that and all his other decorations. He was one of the flyers who, in 1937-38, took the celebrated group headed by Ivan Papanin up to a point near the North Pole and set them down on the polar ice. Months later the party had drifted to a point off Greenland where they were picked up by a Soviet ice-breaker.

In this war Colonel Mazuruk has flown almost every kind of combat plane. Perhaps, however, the flying in which he has shown the steadiest courage and the most remarkable skill is in hovering with an unarmed American-built seaplane over the Murmansk supply route, and landing repeatedly on the icy Barents Sea to pick up men from sinking ships and planes shot down in combat. He has saved more than a hundred American and British lives in this way.

After Colonel Kight had turned over our big C-54 to Colonel Mazuruk to fly the first time, he asked Mazuruk how he liked the ship and how she handled.

"This is such a ship," said Mazuruk slowly and carefully, "that you could fly her till you are an old, old man, with a long white beard, and all you would need to do would be to take the end of your beard occasionally and wipe off the glass in front of you."



He had an insignia of a polar bear on an ice floe painted on our ship for Colonel Kight, as a pledge that after the war the two men would form a Belyi Medved (Polar Bear) Company to fly the Alaska-Siberia route.

We also met Colonel Mazuruk's former mechanic at the time of the Papanin flight. He is now head of a factory making two-engined Soviet bombers.

When we came down from the northern territories, we reached the line of the Trans-Siberian at Irkutsk, near Lake Baikal. This is one of the oldest Siberian cities. It was founded in 1652 and has more colleges than any other city in eastern Siberia.

Like Yakutsk, another old city, founded in 1632, which still has one of the wooden towers of its original Cossack fort, Irkutsk has many very old wooden buildings.

The typical Siberian construction is of heavy logs, roughly squared. Unpainted, the wood weathers to a lovely gray, like some of the old wooden houses in Sweden. In spite of the long, cold winters, houses have many windows; Siberians have learned to make the most of all the sun.

Gay red geraniums in the windows are almost the badge of Siberia; in town and country alike we learned to look for that splash of color. In many cities, of course, there are large new buildings, and a striking modern architecture is coming into being.

It is typical of the Russians, however, that things that are new and big belong to the community. Unless you live in one of the big new apartment houses, your home is more than likely to be a one-story log cabin in the country or a two-story wooden building in town.

There are still so many log cabins that Siberia ought not to run short of presidents for a long time.

### Seals in an Inland Lake

From Irkutsk we visited Lake Baikal and later flew over the lake to the Buryat-Mongol Republic. We missed the full beauty of the lake, however, because of the haze of summer forest fires. Lake Baikal is one of the biggest fresh-water lakes in the world.\*

Once it may have been connected with the sea, because there are seals in the lake, the only fresh-water seals in the world that live so far inland from the ocean. It is the deepest lake in the world, and both the lake and the mountains on its western shore are subject to volcanic disturbances (Plate XIV).

\* See "Western Siberia and the Altai Mountains," by Viscount James Bryce, NATIONAL GEOGRAPHIC MAGAZINE, May, 1921.

The mountains are rich in resources, including wildlife; but the Russians, not satisfied with present resources, have recently introduced the North American muskrat, which is flourishing and will soon provide an annual fur harvest.

Native to the mountains is the strange little musk deer. In the male the upper canine teeth curve down from the upper jaw, like miniature tusks, and on its stomach there grows a "pod" of musk, a strange substance of high commercial value because it has the quality of blending with expensive perfumes and stabilizing their aroma.

The musk deer of western China, on the edge of the Tibetan highlands, are rapidly being exterminated by commercial hunters, but those of the Baikal area are protected.

East of Baikal lie the lands of the Buryat-Mongols, closely related to the Mongols of Outer Mongolia but not identical with them. In fact the Baikal area has been a vortex of human migrations ever since the Stone Age, because it is the meeting point of mountains, the vast forest wilderness, and the equally vast grassy steppe.

### Birthplace of Many Peoples

Here, at the dawn of history, a number of peoples originated. Later they became known as races or tribes or nations, but in origin they were forest people, mountain people, or people of the open grassy plains. They formed their allegiances according to whether they were herders of reindeer or of cattle, fishermen, or hunters of the sable and the squirrel, shy people living in the depth of the forest, or mounted warriors of the open country.

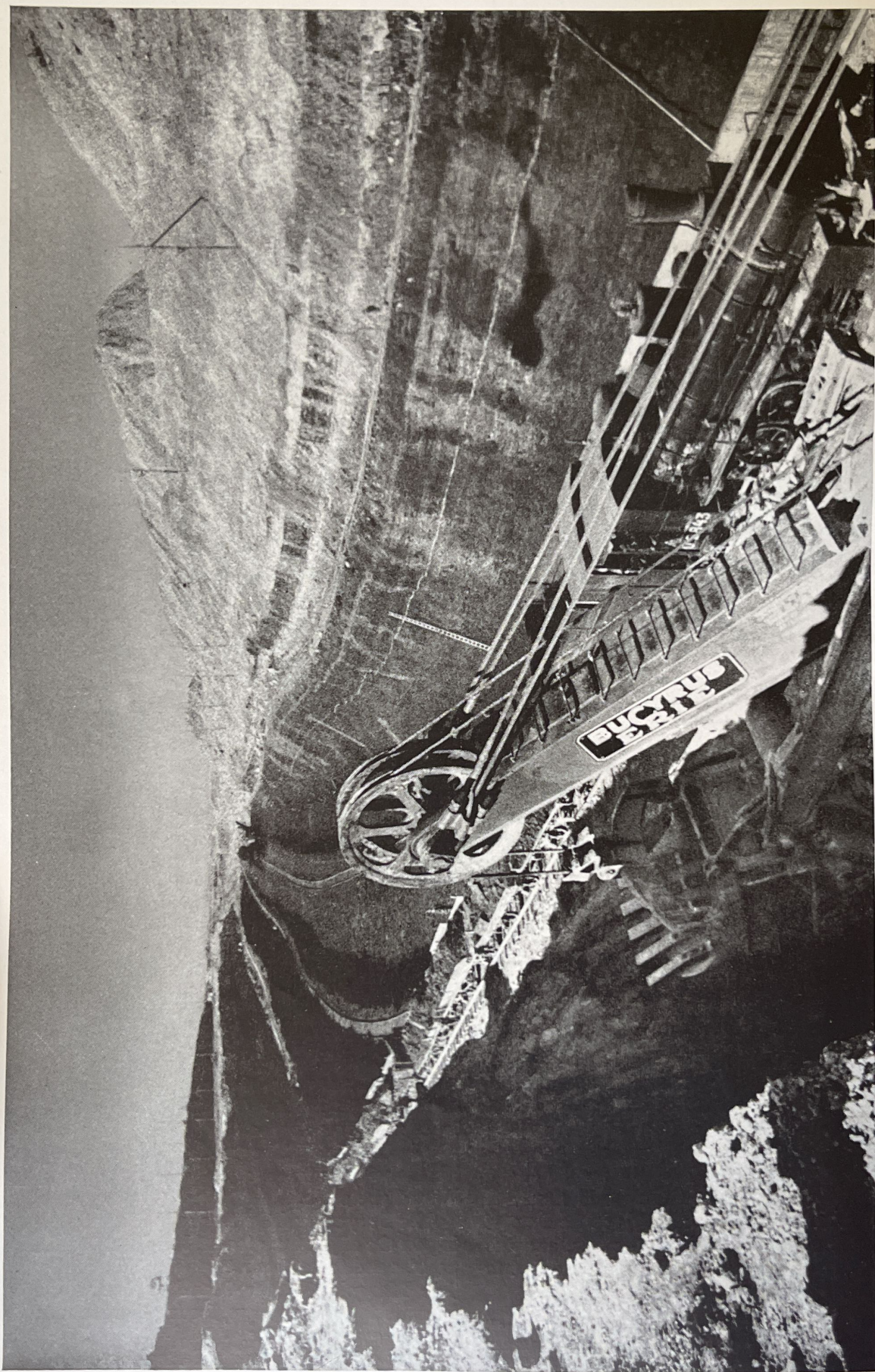
The blood of all these peoples is mingled among the Buryats, and this human mixture is largely to be attributed to one little animal, the sable, whose soft pelt was so valuable that it was known to the early Cossack freebooters as "soft gold." Throughout both Europe and northern Asia the sable pelt was a standard of luxury and prestige.

Because of this, a ladder of oppression led from the little sable of the forest to the Son of Heaven in Peking (Peiping), and another from the sable to the Tsar of All the Russias in Moscow. The Tungus (Evenki), the Urianghais, and other peoples of the forest hunted the sable.

The Buryats and the Daghors (Daurs), living on the edge of the forest, hunted the forest peoples and forced them to give up their sables. The Mongols and the Manchus hunted the Buryats and the Daghors, forcing them in turn to hand over the sables.

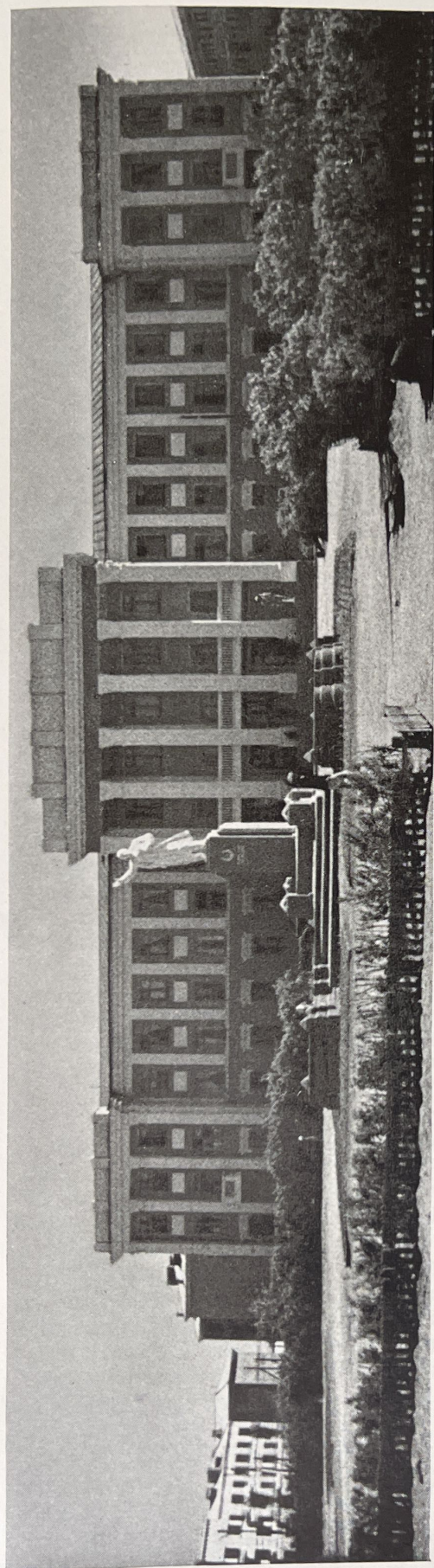
Later came the Russian Cossacks, who laid



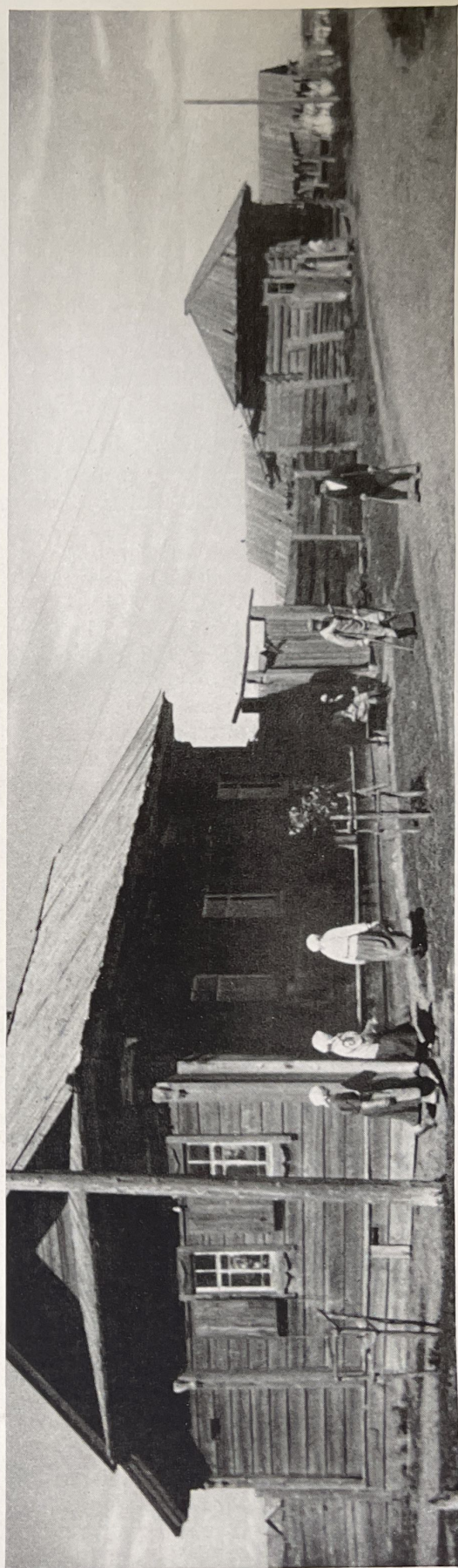


A Karaganda Locomotive Drags Dump Cars through a Canyon of Coal; an American-made Shovel Takes a Seven-ton Bite of Overburden. Low-cost operation is indicated by the fact that overlying dirt is no thicker than the coal. A long ladder gives a measure of the seam. More than 50 billion tons lie in reserve. Karaganda and Kuznetsk Basin coal, smelting Magnitogorsk iron ore, helped save Russia when the Nazis overran the Donets Basin (page 673).





Karaganda, a City of White Public Buildings and Apartment Houses, Looks Like Anything but a Coal-mining Center in the Desert  
 Lenin in stone occupies the place of honor before the town hall. Shrubs are typical of the cultivated greenery that makes this a garden city (page 673).



Front-line Veterans on Crutches Are Almost the Only Men in Shushenskoe

In Siberia the Red Army's wounded enjoy quiet, ample food, and summer sunshine. The author saw many convalescent soldiers in parks and streets (page 664).



a heavy hand on all whom they could reach, demanding a yearly tribute of sable pelts or sometimes of cattle, and later of money.

Because of this turbulent history, the Buryats of today are the descendants of both tribute payers and tribute gatherers, peoples of the forest, the deep woods, and the grassy plains. At the time of the Russian Revolution they were rapidly dying out from drink and disease. Their old social cohesion had been broken up by the Russian conquest, and as despised "natives" and "savages" they had not been taken into the Russian society. Their pride was broken. Only about three or four percent of them could read.

### Nomads Show Mechanical Aptitude

Although they number only some 300,000 people, the Buryats are now a nation. They have their own Republic. They publish books and newspapers in their own language. Their theater, music, opera, and ballet show an extraordinary vigor. At Ulan Ude (Red Gate), on the Trans-Siberian Railroad, their capital, there is one of the great locomotive works of the Soviet Union.

Like the Kazakhs and some other nomads, they show a surprising aptitude for machinery—which raises an interesting point. The chief difficulty with introducing machines among people who have never handled them, as the Russians found out during the early years of industrialization, is that it is easy to learn to step on pedals and pull levers, but hard to learn the importance of maintenance.\*

The nomad already knows, however, that if you ride a horse at a wild gallop all today, you cannot do it again tomorrow. In other words, he already knows that there is such a thing as upkeep and maintenance. "His" machine soon becomes to him like "his" horse—something alive, whose needs must be considered as much as the master's.

Among the Buryats and, as we later saw, among the Kazakhs (page 664), development of recent years has been the modernization of the old nomadic life. These nomads almost never grew hay or other winter feed. Accustomed to foraging for themselves all winter, their cattle and sheep were extremely hardy but low in output of meat, milk, and wool.

And hardy though they were, the spring season was a terrible economic gamble. The spring storms, the birth of lambs, calves, and colts, and the season of the new green grass all came at about the same time. If the herds, thin and worn after a hard winter, were caught by late storms and a late appearance of the new grass just when the young were being born, there was terrible loss of life.

After the Revolution attempts were made to get the nomads to settle down and switch over from nomadism to ranching, and to take up the growing of hay and other feed for the cattle, and potatoes and grain for the people.

This program ran into two kinds of trouble. First, the old aristocratic and ruling families among the nomads resisted the change. Their control of their own people was rooted in the old customs. They could collect so many cattle a year from a man's herds, because that was an established custom; but if a man began to grow hay or potatoes there was no custom to say how much he should give up to the family which traditionally was the head of his clan.

Thus there arose internal conflict which was as bitter and bloody as the civil war between old and new among the Russians.

The new, of course, won, being backed by the Russians and the power of the State, but then the second kind of trouble began. Settlement in villages for the winter benefited the herds, but in the summer there was not enough movement to make full use of the pastures and, with the animals crowded too much together, there was more sickness.

### Tents in Summer; Log Cabins in Winter

This trouble is now being remedied by a partial return to the old life. During the summer people scatter far and wide, leading the old tent life. In winter they gather in a neat village of well-built log cabins. In the villages are schools, libraries, and community centers for movies and concerts.

There are several links between the winter life and the summer life. The fields of hay, potatoes, and grain are generally near the winter village. They are collectively owned, and tended in summer by "brigades" drawn from the summer camps.

Thus a man can live the old life all summer and yet know that when he returns to winter quarters his family will draw its proper share of food for itself and feed for the cattle.

In addition, "bases" are laid out in lines radiating from the winter quarters to the summer pastures. These bases contain sleeping quarters and kitchens for the people and corrals for the animals, which makes movement between winter and summer quarters easier for human and animal mothers and children, and minimizes sickness and loss.

At a "nomad collective" in the Buryat-Mongol Republic we saw how the winter village is

\* See "Magnetic City," Core of Valiant Russia's Industrial Might," by John Scott, NATIONAL GEOGRAPHIC MAGAZINE, May, 1943.





### Stylish Russian Kerchiefs and Buryat Dresses Show Siberia's Mixture of Cultures

These two play in the band at a collective farm (Plate XVI). Their people, once near extinction, are making a comeback under self-government. In wartime their sex does half of Siberia's farm work (page 657).

the focus of community life and pride of achievement.

Here were selected stud horses to improve the herds of the whole community; a Wisconsin-type silo for feed storage which, we were proudly told, had been carefully selected as the best for local conditions; a really charming little community center and theater and, attached to it, an excellent small museum showing both local resources and wildlife and exhibits of the old Buryat way of life.

A brass band, mostly of women and girls, played music of an emphatic "oom-pah" variety. Both women and men were dressed in superb traditional costumes of Chinese brocades and silks, in bright-blue and orange and red and green, colors that might look garish in a city apartment, but are boldly appropriate to the bright sun, fresh wind, and galloping cloud shadows of the rolling steppe (page 647).

We noticed, however, that to cover their heads the women had universally taken to the Russian peasant shawl and the men to felt hats.

From the Buryat-Mongol Republic we turned west to Krasnoyarsk, where the mighty Yenisei flows across the line of the Trans-Siberian on its way to the Arctic.

From this point we made a most interesting

excursion southward to the famous Abakan steppes. Traveling overnight by train, we woke early the next morning to find a wide expanse of prairie, scattered through which was an extraordinary profusion of the burial mounds and stone monuments, set in circles, of ancient nomadic tribes.

### On a Siberian Prairie

This region was a center from which migration after migration set out over the broad plains that link Europe and Asia. Chinese chronicles mention people with "red" hair and "green" eyes in this region, a fact which tells us that even in ancient times European and Asiatic tribes met here.

Minusinsk, close to Abakan, was the center of one of the world's most remarkable Bronze Age cultures, finds from which are displayed in one of Russia's finest museums.

The working of bronze was carried to the point where different alloys were used for ornaments and for tools and weapons. The Minusinsk artistic style shows influences also found thousands of miles away on the shores of the Black Sea in one direction, and along the Great Wall frontier of China in the other, demonstrating the vast range of trade in ancient times.



The flourishing bronze industry and culture of the Minusinsk area were wiped out comparatively suddenly. It seems likely that the people of this region developed such a strong vested interest in the working of bronze and the sale of bronze products that they resisted the introduction of iron, with the result that when they were finally attacked by people using iron weapons, they were quickly conquered.

An ironic comment on the "conservatives" of Minusinsk is that iron of superlatively good quality, easy to work, is also found in the vicinity.

### Village of Lenin's Exile

Some 30 miles from Minusinsk is the little log-cabin village of Shushenskoe. Here Lenin was exiled from 1897 to 1900, and, therefore, this remote, almost untouched frontier village is now a national shrine (page 674). Nadezhda Krupskaya, a St. Petersburg (Leningrad) comrade, who was herself exiled, was allowed to join him here to be married and consequently there are two Lenin houses—one in which he lived before his marriage, and one after.

A number of personal relics are kept here, such as the gold medals Lenin won as a student. There is also a police register, open at a page which shows that Lenin was reported for leaving the village without permission to join a political discussion with other exiles.

In the summer sun, with their gardens and flowers, these modest wooden houses in a tiny village where war wounded rest on benches along the dusty street seem as remote from revolution and the beginnings of a nation, and yet as closely linked with them, as Mount Vernon (page 661).

From Minusinsk we returned to Krasnoyarsk by river steamer along the Yenisei. River life is part and parcel of the history of the Russian people. In this broad, flat land where high mountains are found only on the extreme frontiers, rivers were highways long before roads were passable.

The Cossacks, who made an amazingly rapid conquest of Siberia at a time when the American settlements were still tightly confined to the Atlantic coast, were not only horsemen but boatmen. This fact explains the speed with which they pressed forward from the Urals to the Pacific.

Riding across plains and threading their way through forests, they would reach a river, abandon their horses, fell trees, build boats, and follow the current until they reached a place where they could capture new horses or dog teams or reindeer. Nothing came amiss to them.

To this day the river steamboat plays in

Siberia a part as important as it played on the Missouri and Mississippi when Mark Twain was young and adventurous.\*

Perhaps only the Welsh can rival the Russians as group singers. The number of men and women with good voices and a knowledge of music never ceases to amaze an American. We gathered on the foredeck of the steamer *Joseph Stalin*, specially chartered by our hosts for the voyage back to Krasnoyarsk, and in the long, slowly dimming Siberian summer sunset and twilight the deep Russian voices rolled out across the broad river.

The next day, having a little time to spare, we tied up at the bank, and everyone went ashore to pick the wild flowers starring the meadows between deep stands of timber. Perhaps because the summer is for them a short and fleeting season, all Russians seem to be passionately fond of flowers.

From Krasnoyarsk we flew west to Novosibirsk, our farthest point west on the line of the Trans-Siberian.

Novosibirsk is as "high, wide, and handsome" as a Siberian Chicago. A few years ago it was a provincial town; now it is a huge city with a leading record in municipal building and improvements.

Its main street, Krasny Prospect, is an immense double avenue with a parkway down the center. Its opera house seats 2,000, has room for an orchestra of 120, an operatic chorus of 120 with 60 soloists, and a ballet of 120.

### Moving a Factory by Rail

Novosibirsk is especially proud of its hard-driving war record. A number of evacuated war factories were relocated here. One, an ammunition factory, was moved in by units, and the planning was done so well that each unit could be set up as fast as it was unloaded from the train. The first units were turning out shells before the last ones had reached Novosibirsk and been unloaded.

There is also a notable fighter-plane factory, which was of special interest because it was possible to check the very large increase in production which had been achieved since Donald Nelson had visited the same plant less than a year previously.

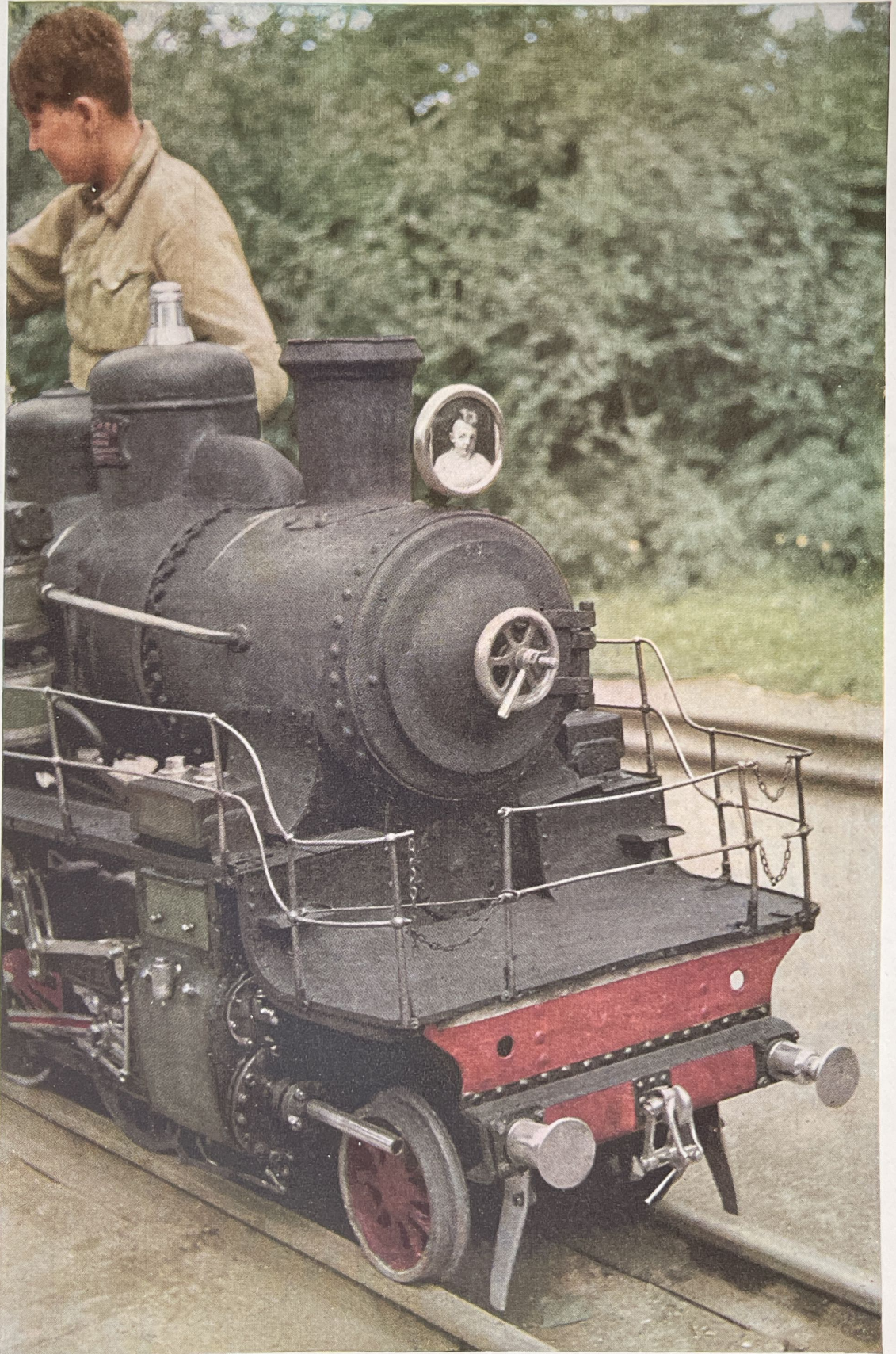
Turning to the south, the next stop was at Semipalatinsk, in the huge Kazakh Republic, which reaches from the Chinese frontier to the Caspian Sea.

The Kazakhs, numbering about three million, are one of the important Soviet minority

\* See "Mother Volga Defends Her Own," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, December, 1942.



Sunny Siberia



© National Geographic Society

Kodachrome by Owen Lattimore

**A Krasnoyarsk Boy Drives a Toy Locomotive Bearing Lenin's Baby Picture**  
Even in war Soviet children get priority. Mechanical toys train them for the future.





Kodachrome by Owen Lattimore

© National Geographic Society

### Log Cabins, Grassy Steppe, and Rolling Hills—Here Is the Average Siberian Village of This Century and the Last

Woods dot the hills and follow the stream. Livestock from the corrals roam fenceless prairie. Wood built the town; stone and brick are for the new industrial cities. Skilled axmen joined the logs tightly, sealing out winter's blizzards. Here on the outskirts of Irkutsk, Abe Lincoln the storekeeper might not have felt too far removed from log-built Salem, Illinois.





© National Geographic Society

### Though Wanderlust Calls, These Nomads Stay at Home

Other Buryat-Mongols, following the collective farm's herds, are in their cool tents on summer's pastures. They have left this brigade to grow hay and potatoes and care for winter's cabins. The boy wears a Red Army cap.

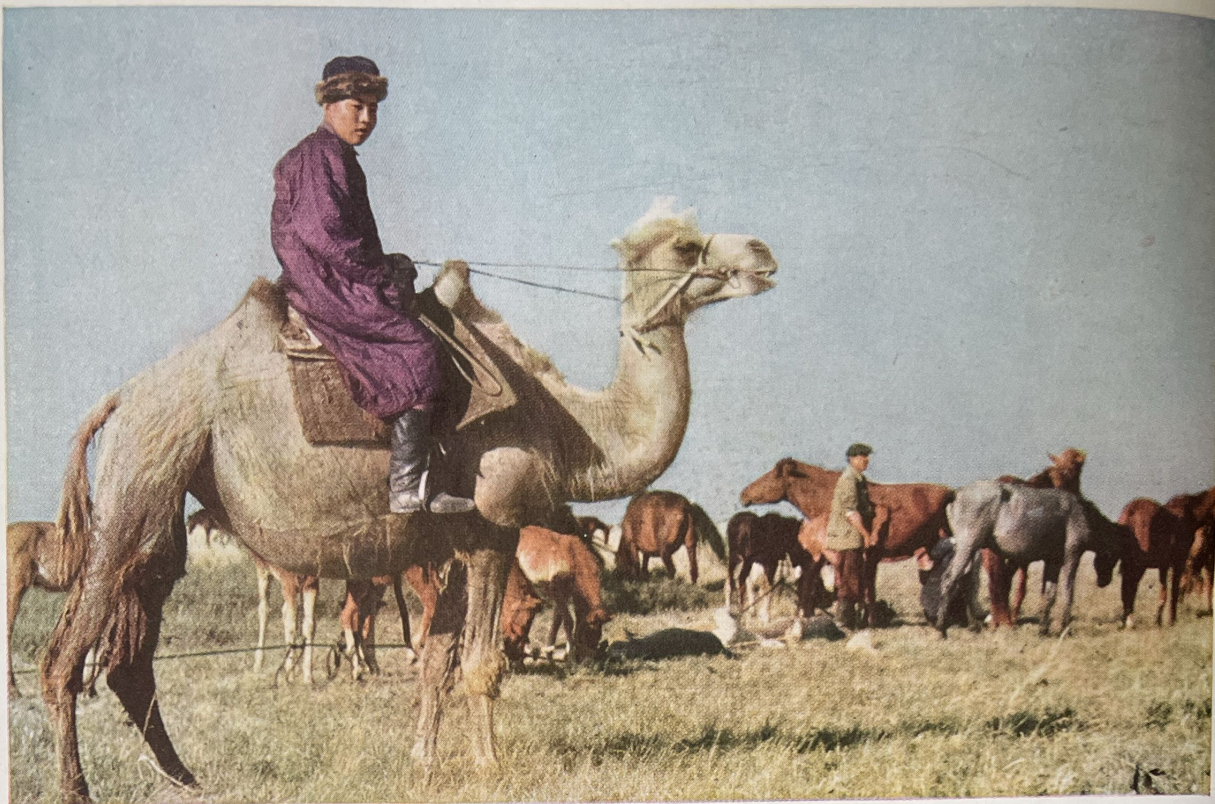


Kodachromes by Owen Lattimore

### Buryat Women Fill a Powerhouse Tank with Water

Though the machinery is there, it lacks pipes, for war shortages set in before installations could be completed. These part-time nomads live in Ernst Thaelmann, a collective farm named for a onetime political leader in Germany.





**What's This? A Camel Riding Herd on Horses? No, Its Kazakh Master Is Sight-seeing**  
Bridle and bit show it is a young beast not yet pierced for the nose peg. Summer's molt has set in. Two humps make an easy seat, but wide ribs stretch the tenderfoot's legs. Milk mares are tethered to the rope.



© National Geographic Society

Kodachromes by Owen Lattimore

**Anticipating the Feast, Kazakhs Cut Mutton for Boiling and Clean Casings for Sausage**  
Behind them stands their summer home, the age-old circular yurt. Reeds for air-conditioning and felt for warmth hang on a collapsible trellis. With variations, the same tent is found throughout Central Asia.



## Sunny Siberia



### For Roping Horses, a Cowboy Carries a Pole Lasso—It Lacks the Range of a Lariat

A good pole pony knows intuitively when to wheel or brace. Just as cannily, the hunted mare bores head down into the herd. Kazakhs, who gentle colts from birth, do not admire pictures of our broncobusters' roughness.



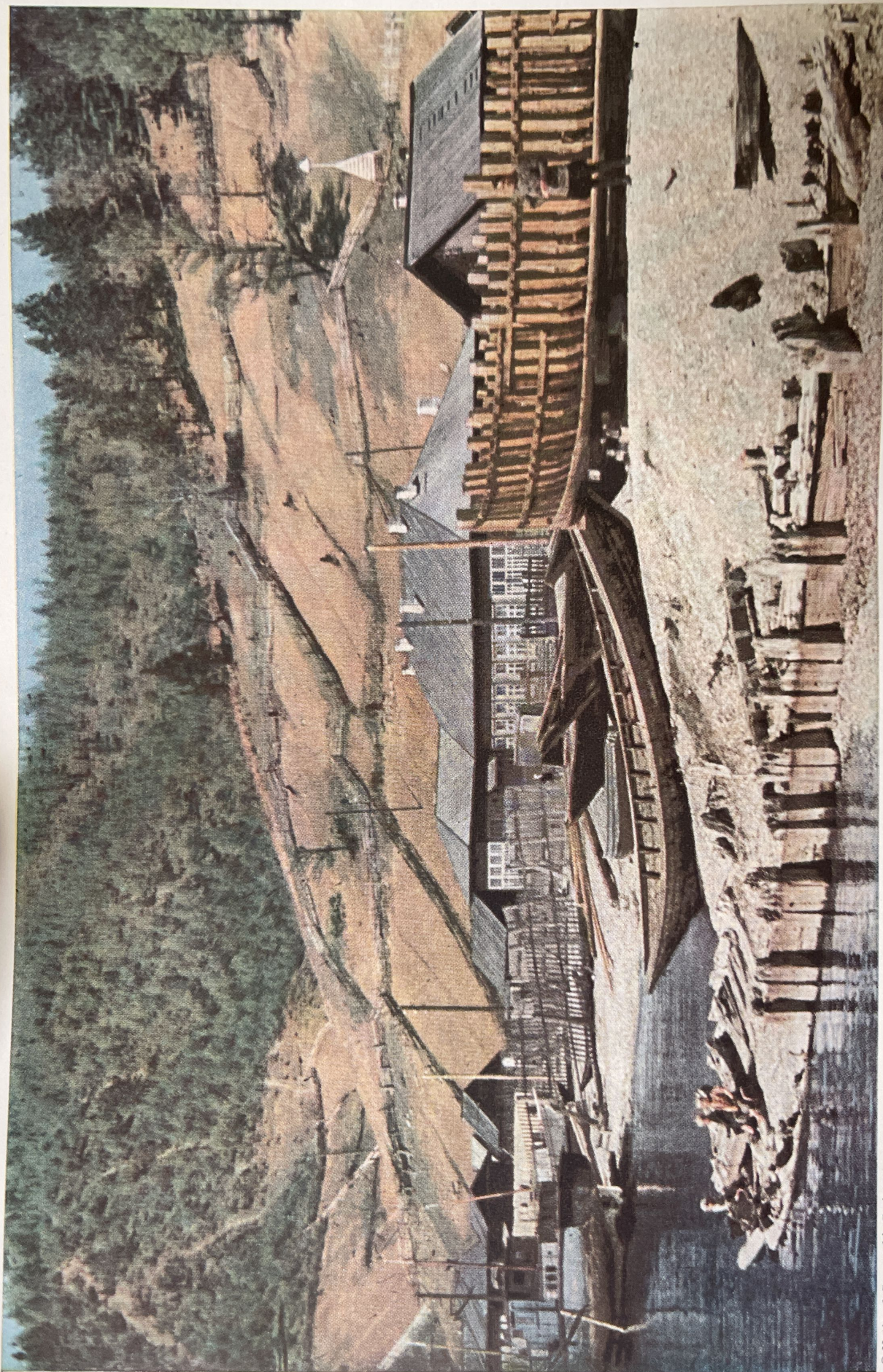
© National Geographic Society

Kodachromes by Owen Lattimore

### It Takes Two to Milk a Mare—a Colt to Start the Flow, a Man to Fill the Pail

The result will be kumiss, a fermented milk wine. From it is distilled *airak*, of brandy strength. Though it has no age, "there's not a headache in a skinful" (so they say). Kazakh men milk the mares, women the cows.





© National Geographic Society

Kodachrome by Owen Lattimore

Small Fry (Left) Fish in Baikal, a Lake More Than a Mile Deep

Museum of ancient life, Baikal contains more than 1,300 animal and vegetable species; most exist only in its waters. There are inland seals, fresh-water sponges, and deep-water fish. Seen from a wharf is a university's scientific station. Rail fences soar to timber. Right, a navigation marker, on hill





© National Geographic Society

Shirttail in or Shirttail out—Which Is Buryat Style?



Kodachrome by Owen Lattimore

Where Teacups Are Generous: a Kazakh Picnic on the Steppe





**Baby's Cradle Is a Packing Box Swinging above Mother's Brick-and-Board Bed**

In summer they sleep in their poplar-shaded yard in Tashkent. The mother is a Tatar; by appearance she has some Russian blood. Her husband is an Uzbek. Tashkent, capital of the Uzbek S. S. R., is Central Asia's melting pot.



© National Geographic Society

Kodachromes by Owen Lattimore

**What Would Genghis Khan Say of This All-girl Orchestra (Barring a Boy in the Back Row)!**  
They like brass in the community center of the Ernst Thaelmann collective farm. The traditional Mongol instrument is a fiddle. Russian shawls top Buryat costumes. Propaganda pictures line the wall.



racess. At one time a great warrior race, they fought a long time against the Tsarist advance into Central Asia; but, like the Indians of our own Western Plains, they fought without unity because they were divided into many tribes and clans, and were eventually crushed.

Even in defeat, the Tsarist authorities regarded them with distrust, and they were not recruited into the army. During the last war attempts were made to conscript them into labor battalions, but they rose in a bitter rebellion which preceded the Russian Revolution.

This rebellion during the last war is a measure of the change that has now taken place among the Kazakh people. The old tribal divisions have been discontinued, and they are now welded together as a single nation. Instead of rebelling against war service, the Kazakhs have contributed whole cavalry divisions to the Red Army.

Because the majority of the Kazakhs do not speak any language except their own (which belongs to the Turkish group of languages), they are not scattered among Russian troops but grouped in divisions of their own, under their own officers, and have shown a fighting quality which the Russians warmly acknowledge.

The nomadic life of the Kazakhs is much like that of the Buryats, except that most of their grazing lands are decidedly more desert, with a much hotter summer. These conditions make it necessary for them to use more camels and to move farther and more often; consequently the organization of "nomad bases" is even more important (page 676).

#### Education Among the Kazakhs

The achievements of the Kazakhs are even more striking than those of the Buryats, partly because, being a more numerous people, they can support a larger system of higher education of their own.

There is also a remarkable variety of industrial development in Kazakhstan. Semipalatinsk is the great stockyard city, with vast slaughterhouses, cold-storage facilities, and canning plants.

In addition, the dislocation of industry in western Russia has been turned to as good account as possible by relocating at Semipalatinsk industries dealing in leather and wool. As a consequence, Semipalatinsk is rapidly becoming a center of consumer-goods industry—still an exceptional development in the Soviet Union, where the emphasis has hitherto been on heavy industry.

In addition, Kazakhstan has important new industries at Karaganda and Balkhash.

At Karaganda, in addition to coal pits, there is opencut coal mining on a very large scale. The seams are so wide and deep and so near the surface that it is practicable to scoop off the top crust with bulldozers and steam shovels. This exposes the seam, and the steam shovels are again put to work, gouging a channel into the heart of the coal.

#### American Equipment for Coal Mining

With a channel opened, tracks are laid and trains run right into the body of the coal, where they are loaded by steam shovels working at the sides. Quantities of American equipment are used in this work.

The Soviet engineers are anxious to get additional electric shovels, to lessen the fire hazard and to facilitate work in winter when temperatures are so low that steam operation is hampered; but in the meantime the steam shovels are being operated efficiently, often by women.

Until coal mining started, Karaganda was only a name in the desert. The city at the heart of the coal field was built from the beginning as a model city, its white public buildings and apartment houses defying the traditional drabness of a coal-mining center (page 661).

Miners from the Donets Basin, the South Wales of Russia, form the nucleus of the labor force. The chief engineer, a short, stocky man built just like a Welsh miner but with the Russian blondness, told us that he was a third-generation miner. He was the Russian equivalent—which we met again and again, handling the tough jobs and directing the key operations—of the American industrial leader who has come up from the ranks.

He told us the Kazakhs were rapidly entering the coal mines and that a high percentage of them were qualifying as Stakhanovites, or workers who exceed the normal output quota (and draw corresponding premium pay), not by working overtime but by skillful organizing of their own work and teamwork with others.

When we asked him whether he himself intended to stay after the war, he grinned and said that he was going back to the Donets Basin and let the Kazakhs run their own show. It was the Russian equivalent of "giving it back to the Indians."

At Balkhash, on the shores of Lake Balkhash (Ozero Balkhash), copper is mined at the Kounrad mine, a hill of copper-bearing ore that juts up from a desert plain.

A Russian engineer told me that when he first visited this region twenty years ago, as a university student on summer vacation, the desert was so bleak that only one or two





### Lenin's Bachelor Home in Shushenskoe Is a Museum; Its Staff Stands on the Porch

Even the remoteness of his exile did not prevent Lenin from working to prepare the revolution that was to make him famous two decades later. In another house in this village Lenin lived with his bride, a comrade from his St. Petersburg union. There he wrote *Development of Capitalism in Russia* (page 664).

Kazakh families were encamped in the whole region.

The mines were from 31 to 43 miles apart, and it was possible to travel only by camel. Now there is a small but flourishing modern city on the shores of the lake.

The Russians call the Kounrad mine their Anaconda. The engineers told us that the flotation process of concentrating used there is the same.

Work in the mine and the processing plant is unhealthy because of the dust and the fumes; women are largely employed because of the drastic manpower shortage during the war.

The interests of the labor force, however, are protected by special hours, pay, food allowances, frequent health checkups, and vacations.

### Farthest from Washington, D. C.

Flying on across Kazakhstan, we came to Tashkent, capital of the Uzbek Republic,\* the farthest point from Washington which we reached.

Here we were in the oasis zone of the vast Central Asian desert. The oases are fed by the glaciers and eternal snows of the Pamirs

and high mountains which demarcate the Afghan and Chinese frontiers.

In the oasis zone itself there is little or no rain. The arrangement is ideal for crops like fruits, melons, and cotton, because there is no danger of spoilage by unseasonable rain.

Instead, the hotter the weather gets and the more water is needed, the more the ice and snow melt in the distant mountains and the more water obligingly flows down the rivers, to be diverted into the irrigation channels.

In this land live the Uzbeks, whose tongue is closely related to the Turkish languages distributed so widely over Central Asia. Like other peoples of this region, they have had violent ups and downs in their history. At times they have attained high cultural levels; at other times their economic prosperity, together with the standard of civilization, has been violently shaken by devastating wars.

### Cotton in Uzbekistan

The main story of Uzbekistan for a good many decades has been a story of cotton. The Russian cotton-textile industry was young

\* See "Russia's Orphan Races," by Maynard Owen Williams, NATIONAL GEOGRAPHIC MAGAZINE, October, 1918.





### A Clubhouse for Executives Rewards a Group That Made Good in Karaganda Coal

Gleaming white, the building represents a government gift to the leaders of a successful project in Kazakhstan. In most other countries such men would have been rewarded individually.

at the time of the American Civil War. Cut off from American supplies at a time when it had not yet accumulated capital reserves, it suffered heavy losses.

The whole industry was therefore much interested in the cotton of Central Asia, which was then being conquered by the Tsar's armies. This cotton was of inferior quality, but in due course American cotton was introduced. In order to safeguard the interests of the textile industry in central Russia, no mills were allowed to open in Central Asia, and the section suffered accordingly.

Moreover, the American cotton of Central Asia was not up to American quality. The reason for this has only recently been worked out and the problem solved by Soviet scientists.

The trouble was that the Central Asian cotton belt, though it had temperatures like those of the American Cotton Belt, lay much farther north, at about the latitude of New York State.

This meant longer summer days, and consequently much more sunlight, which upset the growth habits of the cotton and the date of maturing.

It was therefore advisable to cross American cotton with native Central Asian cotton in

order to breed a type with the growth habits of Central Asian cotton and the superior characteristics of American cotton.

Here the most difficult problem arose: one type of cotton had 52 chromosomes, the other 26, which made the cross infertile.

The problem was finally solved by chemical treatment of the plant with only 26 chromosomes, in order to step up the number of chromosomes long enough to get a cross which bore fertile seed.

This has now been successfully done, and Uzbekistan is now producing more and more cotton of the highest quality.

The old ban against mills in Central Asia has been removed, and the area now produces both raw cotton and the finished commodity. Mining and other industries also are flourishing.

### From Oasis Agriculture to Irrigation

The result is that Uzbekistan and all Central Asia are advancing with extraordinary rapidity from highly specialized oasis agriculture to a rounded and diversified economy of large-scale agriculture, increased by new dams and irrigation projects which the Uzbeks of the past could not attempt for lack of machinery.





**Migrating Kazakhs Ride a Russian Four-wheel Cart Rather Than a Nomadic Two-wheeler**  
 With harness variations, these versatile part-time nomads hitch horses or camels to the same cart. They travel between bases set up by their collective to modernize old migration routes (page 673).

The results are likely to be significant, not only in Soviet territory but in changing the general balance of agriculture and industry in "the unchanging East." We, who approach Asia from the sea or from the air, are accustomed to think of most of Asia as under-industrialized.

The whole problem of future industrialization changes if we take into consideration the fact that on the landward, inner Asian side of Asia, industrialization is already going on apace, served by a growing network of roads and railroads.

Turning back from Tashkent and re-entering Kazakhstan, the last stop of the journey in Soviet territory was made at Alma Ata, capital of the Kazakhs and center of Russia's motion-picture industry.

A beautiful city of white modern buildings and weathered old buildings of log construc-

tion, it stands on one of the most impressive sites in the world, an infinite flat plain at the very foot of mountains covered with eternal snow.

### Deeper into the Heart of Asia

Saying good-bye to the Soviet hosts who had accorded the Vice President of the United States unlimited hospitality and extraordinary facilities for seeing the wide range of life and achievement in Soviet Asia, we took off in the morning and headed east.

We were bound on a journey still deeper into Asia, in the face of a sun that gleamed warmly on the yellow desert and sharply on the white mountains.

It was not long before we crossed the U. S. S. R. frontier into Sinkiang and were over Chinese territory.\*

Heading straight for the Talki Pass and the ancient road that leads to Urumchi (Tihwa), to the Great Wall, and to the distant interior of China, we cleared the pass in a few minutes.

Eighteen years before, it had taken a full day of hard riding for my wife and me to cross that same pass on horseback. It was a strange return, and one that only 18 years ago would have strained the wildest imagination.

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE, "Desert Road to Turkestan," by Owen Lattimore, June, 1929; "By Coolie and Caravan Across Central Asia," by William J. Morden, October, 1927; "With the Nomads of Central Asia," by Edward Murray, January, 1936; "On the World's Highest Plateaus," by Hellmut de Terra, March, 1931; "First Over the Roof of the World by Motor," March, 1932, and "From the Mediterranean to the Yellow Sea by Motor," November, 1932, both by Maynard Owen Williams.